RGPV (DIPLOMA WING) BHOPAL	OBE CURRICULUM FOR THE COURSE	FORMAT-**3**	Sheet No. 1/3
Branch	CHM	**Semester**	FIFITH
Course Code		**Course Name**	Hardware Troubleshooting & Maintenance

Course Outcome 1	Basic Concept of Microprocessor	Teach Hrs	Marks
Learning Outcome 11	To Explain processor and its Generation	15	10
Contents	CPU:- RISC & CISC Microprocessor, CPU Packaging: DIP, PGA, SPGA, MCM, LCC, PLCC & Tape Carrier Package. Intel CPU Family: Fifth generation & Sixth Generation P6, Xeon, Celeron Processor AMD CPU Family Fifth, Sixth, & Seventh Generation K Series, Athlon, Thunder bid & Duron Processor Processor Specification : Clock Speed, FSB, L1 & L2 cache, Processor over clocking.		
Method of Assessment	Internal assessment		
Learning Outcome 12	To Explain Motherboard		
Contents	Idea about faster microprocessor motherboard 80286, 80386, 80486 ,Pentium, AMD. Idea about dataflow Function of different chips in motherboard Dump and smart chips, Identification of different cards and adapters Pin configuration and details of cables – RS 232 – 25 pins, RS 232 C 9 pins , power cable testing		
Method of Assessment	External assessment		
Course Outcome 2	Memory and BIOS		
Learning Outcome 21	To Explain Memory	10	
Contents	Logical Organization of Memory: Real Mode, Protected Mode, Lower, BIOS Data Area, Upper Memory, High Memory Area, Frame Buffer, Shadow & Cache Memory Packaging : DTPP, STPP, SIMM, DIMM,RIMM RAM Types: EDO, SDRAM, VRAM, SGRM,RDRAM, DDRAM, PPRAM		

	Memory Performance: Speed, Inter living & Caching
Method of Assessment	External assessment
Learning Outcome 22	To explain BIOS
Contents	BIOS Functions, Cold & Warm Booting, BIOS Error Codes, BIOS Interrupts, Identification of Different BIOS, BIOS Memory Assignments, BIOS Advance setup , Troubleshoot BIOS
Method of Assessment	External assessment
COURSE Outcome 3	**TROUBLE SHOOTING AND MAINTENANCE**
Learning Outcome 31	TO EXPLAIN BASIC TROUBLE SHOOTING	15	10
Contents	Maintenance flow charts, routine checks DIP switch setting Jumper setting , installing new motherboards Rum problems, their diagnostics and preventing maintenance Identification of bad sectors
Method of Assessment	External assessment
Learning Outcome 32	To Explain Advance troubleshooting
Contents	Tools and components, Startup problems , run problems Display problems, Circuit board repairs. Disassembly hints for PC – XT /AT
Method of Assessment	External assessment
Learning Outcome 33	To Explain SMPS & Power Supply Maintenance
Contents	Circuit diagram and pin assignments, Working of SMPS Input and load requirements, Connecting a PC and peripherals to power supply Cautions about opening power supply, Over voltage and over current protection, Upgrading the power supply, various test for fault tolerance. Problem of dissimilar earth and loose connection, Protecting the PC from AC.
Method of Assessment	External assessment

COURSE Outcome 4	**DISK DRIVES OVERVIEW AND TERMINOLOGY**		
Learning Outcome41	To Explain Hard Disk	10	10
Contents	Disk structure: Cylinders , heads , platters, tracks and sectors, structure of a disk, cluster Performance: access time, seek time, latency period, data transfer rates, and interleave Factors, hard disk controllers. Types of interface between controller and drives Hard disk software installation: Physical formatting, partitioning, high level formatting, Hard disk installation.		
Method of Assessment	External assessment		
Learning Outcome42	To Explain Floppy Disk		
Content	Types, structure, working principles. Removing , configuring and installing floppy disk drive Floppy drive testing, trouble shooting and adjustment. IDE controller card		
Method of Assessment	External Assessment		
COURSE Outcome5	**Hardware's and Peripherals Troubleshooting**		
Learning Outcome51	To Explain Keyboard	20	10
Contents	Study of keyboards, types, interface 8048, Interconnection to PC, Common faults and diagnostics, Introduction to mouse on serial ports, Parallel port card, serial port card, integrated card, Joy stick, light pen, graphics table controller.		
Method of Assessment	Internal Assemant		
Learning Outcome52	To Explain Monitor		
Contents	Block diagram of monochrome monitors. Pixels and resolution, Sync section, video amplifier, Display basics, test modes and graphic mode. Display adapter cards, HGA , CGA , VGA, EGA and super VGA, How they fail , trouble shooting		
Method of Assessment	Internal Assemant		
Learning Outcome53	To Explain Printer		
Contents	Types of printers.(DMP,INKJET,LASER,LINE) Connecting printers to computers. Preventive maintenance of printers. Trouble shooting		

Method of Assessment	Internal Assemant
Learning Outcome54	To Explain Peripherals		
Contents	I/o Ports: Serial Communication, serial Port Connectors, Parallel port connectors, Compatibility Mode, Nibble, Byte Mode, Enhanced Parallel Port , Extended Capability Port, Universal Serial Bus, USB Connector, Video Systems: Text Mode & Graphic Mode, Video Adaptor Characteristics, Video Standards: VGA, XGA, Super VGA , Feature Connectors, Video
Method of Assessment	Internal Assemant

List of Expriments

Experiment:1
Identifying PC Components.
Objective: To learn about different component of PC:
Motherboard, Processor, Memory, System Bus, peripheral hardware (keyboard, mouse, monitor, printer (types)).
Experiment:2
Identifying external ports and interfacing.
Objective: To learn about different ports and how to connect devices to them.
a)Parallel port (LPT parallel port) b) Serial port c) VGA Port d) PS/2 Port e) USB Port f) Ethernet Port g) Game Port
Experiment:3
Identifying PC cards and interfacing.
Objective: To identify different PC cards and to learn how to install them.
a) Sound card b) Video card c) Network card
Experiment:4
Identifying ports on the cards and interfacing
Objective: To identify ports on the PC cards
Experiment:5
Preventive maintenance of a PC

Objective: To learn how to maintain a PC so that it gives longer service without any problems.

1) System backups. 2) System cleaning. 3)Hard Disk Maintenance:

Experiment 6
Understanding CMOS
Objective: To know and understand the features available in the CMOS.
Experiment 7
Partitioning and formatting Hard disks.
Objective: To learn how to partition and format the hard disk.
Experiment 8
Installing system and application software
Objective: To learn how to install system and application software.
System Software: Window OS installation say window XP/vista/2007, Linux
Application Software: MS Office 2003/2007 etc.
Experiment 9
Understanding control panel settings.
Objective: To learn about the control panel and options available in it.
Experiment 10
Working with Backups and Archival utilities Objective: To learn how to use Backups.
To learn use of winzip / winrar.

BOOKS RECOMMANDED.
TEXT BOOK
1 Peter Norton's: Inside the PC, SAMS Techmedia
2 Winn L. Rosch's: Hardware Bible, SAMS Techmedia
3 Gaig Zacker's: The complete Reference PC Hardware, Tata McGraw Hill
4 Bigelow: Bigelow's Troubleshooting,Maintaining & RepairingPCs, Tata McGraw Hill
5 Balasubramanian: Computer Installation & Servicing, Tata McGraw Hill